

REMARKS

Amendments to the Claims

Claims 1-5, 8-12, 18, 20, 22-38, 40, 41 and 44-47 are currently pending. Claims 46 and 47 have been amended. Claims 27-37 have been withdrawn from consideration. Claims 6, 7, 13-17, 19, 21, 39, 42 and 43 have been cancelled without prejudice to their prosecution in this or a future application. Claims 1-5, 8-12, 18, 20, 22-26, 38, 40, 41 and 44-47 currently stand rejected.

Applicant has amended claims 46 and 47 to correct the inadvertent omission of the term "energy-curable" from the term "monomer." This amendment is properly supported by the specification and the as-filed claims. Accordingly, no new matter has been added.

Rejections Under 35 U.S.C. §102

The Office has rejected claims 1, 3, 4, 8, 10-12, 18, 20, 22-26, 38, 40, 41, 44 and 45 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 6,528,127 to Edlein (hereinafter "Edlein"). *Office Action*, pp. 2-6. Applicant respectfully disagrees and traverses the rejection.

Edlein allegedly teaches a "printed packaging material comprising a marking containing a pigment provided on a primary surface of the packaging film, and a pigment free coating/overcoat is provided over the marking, wherein the coating/overcoat is polymerized by radiation to form a protective layer over the printing marking." *Id.* at p. 2. The Office alleges that "marking" disclosed in Edlein "meets the [Applicant's] claimed ink formulation." *Id.* According to the Office, the "marking comprises ink containing pigments and carrier resins such as acrylate, epoxide and

ester functionalities." *Id.* (emphasis added). In view of this alleged teaching, the Office concludes that the "pigment [disclosed in Edlein] meets the claimed ink and the carrier resins meet the claimed energy curable material." *Id.* Applicant respectfully disagrees for at least the following reasons. In support of its arguments, Applicant is submitting a declaration under Rule 132 entitled "Declaration Under 37 C.F.R. § 1.132 of Imtiaz Rangwala" (hereinafter "Declaration").

When establishing a rejection under 35 U.S.C. § 102, the Office must provide a prior art reference that teaches or discloses each and every limitation of that claim.

See, e.g., Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 20 (Fed. Cir. 2000) (emphasis added) ("Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention.").

Claims 1, 3, 4, 8, 10-12, 38, 40, 41 and 44

Independent claims 1 and 38 recite an ink formulation comprising an air-dryable or dried or thermally-dryable or dried ink and at least one energy-curable monomer.

Claims 3, 4, 8, 10-12, 40, 41 and 44 depend directly or indirectly upon claim 1.

Edlein describes a number of exemplary inks that "involve pigment(s) dispersed in one or more standard carrier resins." *Edlein*, col. 9, ll. 44-45. According to Edlein, "[s]tandard carrier resins include one or more nitrocellulose, polyamide, polyurethane, ethyl cellulose, cellulose acetate propionate, (meth)acrylates, poly(vinyl butyral), poly(vinyl acetate), poly(vinyl chloride), and the like." *Id.* at col. 9, ll. 63-67 (emphasis added). However, contrary to the Office's assertions, these carrier resins are *neither* monomeric nor energy curable.

When describing their invention, the patentees of Edlein state that the "present invention" provides for a flexible packaging material where "at least one pigment containing marking is derived from a solvent-based ink. . . ." *Id.* at col. 1, l. 65 to col. 2, l. 4 (emphasis added). The patentees also state that the "method of the present invention . . . allows for the use of standard solvent-based inks. . . ." *Id.* at col. 2, ll. 28-31 (emphasis added). The patentees expressly define a "solvent-based ink" as "an ink in which a pigment is dispersed in a polymeric carrier which, in turn, is solvated in a liquid medium such as, for example, water, an alcohol, an ester, or the like." *Id.* at col. 3, ll. 31-34 (emphasis added). Therefore, in defining the inks of their present invention, the patentees of Edlein clearly and unambiguously state that the "carriers" comprising those inks are indeed "polymeric." Thus, the patentees have explicitly characterized the carriers listed in Edlein, including the acrylate, epoxide, and ester resins, as being polymeric in nature. *Declaration*, p. 4.

In addition, Edlein actually disparages the presence of monomers in the ink formulations disclosed therein. For instance, the patentees state that "widely used [resin] blends includ[e] nitrocellulose/polyamide and nitrocellulose/polyurethane." *Edlein*, col. 10, ll. 1-2. The patentees further state that "[t]he latter blend is preferred in the present invention because it can resist penetration of monomers and/or oligomers existing in the overcoat." *Id.* at col. 10, ll. 2-5 (emphasis added). This disclosure clearly teaches that the presence of monomers within the ink layer is undesirable. Thus, limiting the migration of monomeric components from the lacquer overcoat into the ink is one of the objectives in Edlein, and it would therefore defy logic to include them in the initial ink formulation. Accordingly, the patentees' own express disclosure further

evidences the absence of energy-curable monomers from the ink carriers allegedly identified by the Office. *Declaration*, p. 5.

Applicant also asserts that a person of ordinary skill in the art, even in the absence of an explicit statement, would readily appreciate the polymeric nature of the carrier resins allegedly identified by the Office. *See id.* at pp. 4-6. For example, nitrocellulose, polyamide, polyurethane, ethyl cellulose, cellulose acetate propionate, poly(vinyl butyral), poly(vinyl acetate) and poly(vinyl chloride) all represent well known synthetic polymers in the art that are commonly added to standard inks to impart strength and facilitate solvent uptake. *Id.* at p. 4. Thus, a skilled artisan would recognize that the "(meth)acrylate" resin identified in the list of exemplary carriers disclosed at column 9 of Edlein represents a polymeric carrier. This contention is further evidenced, in part, by the patentees use of the term "and the like" when concluding their list of resins. *Edlein*, col. 9, l. 67. It is illogical to conclude that the patentees of Edlein purposely included energy-curable (meth)acrylate monomers in a list of resins otherwise composed entirely of inert polymers. *Declaration*, pp. 3-5. Accordingly, the patentees inclusion of the term "and the like" in listing exemplary carrier resins clearly teaches that the (meth)acrylates envisioned by the patentees are in fact polymeric, and not, as suggested by the Office, monomeric.

Applicant further contends that the term "resin," by its very nature, represents a non-reactive, polymeric material. For instance, Webster's Dictionary defines the term "resin" to include "[a]ny of numerous physically similar polymerized synthetics or chemically modified natural resins including thermoplastic materials, as polyvinyl, polystyrene, and polyethylene, and thermosetting materials, as polyesters. . . ."

Webster's II New College Dictionary, (3rd ed. 2005) (emphasis added). Thus, the term "resin" is typically used to identify polymeric components. For at least this additional reason, it would be incorrect to generically classify energy-curable monomers, including monomeric acrylates, epoxides or esters, under the term "resin."

Claims 18, 20, 22-26 and 45

Independent claim 20 requires an ink formulation and a lacquer layer, wherein the ink formulation comprises an air-dried or thermally-dried ink and at least one first polymer, and a lacquer on at least a portion of the ink formulation comprising at least one second polymer. Claim 20 also requires *at least some* chemical bonding between the first and second polymers. Claims 18, 22-26 and 45 depend directly from claim 20.

Edlein does not disclose layered materials having an ink layer and a lacquer layer each comprising polymers exhibiting at least some bonding to each other. While Edlein arguably discloses materials comprising polymeric ink components and a polymeric overcoat, Applicant submits that a person of ordinary skill in the art would recognize that the polymeric carrier resins disclosed in Edlein are not chemically reactive by nature. *Declaration*, pp. 5-6.

The polymeric ink carriers and components disclosed in Edlein differ from the polymers recited in the ink formulation and lacquer of pending claim 20, which are derived from chemically-reactive monomers that induce at least some bonding between the two layers upon polymerization. Exposing the inks and overcoat layers disclosed in Edlein to ionizing radiation would merely result in bonding amongst the monomers of the overcoat, free from any bonding with the inert carrier polymers of the ink

formulation. *Id.* Accordingly, Edlein fails to teach layered materials that exhibit bonding between ink and overcoat layers.

Withdrawal of the instant rejections under Section 102 is requested.

Rejections Under 35 U.S.C. §103

In the alternative, the Office has rejected claims 1-5, 8-12, 18, 20, 22-26, 38, 40, 41 and 44-47 under 35 U.S.C. §103(a) as allegedly being obvious in view of U.S. Patent Publication No. 2003/0001108 to Rangwalla et al. (hereinafter “Rangwalla”) and Edlein. *Office Action*, p. 8.

According to the Office, “Rangwalla discloses a packaging material comprising a substrate, a lacquer coating on the substrate, and an ink print layer between the substrate and ink print layer, wherein the lacquer coating [is] substantially identical to the claimed lacquer. . . .” *Id.* at pp. 8-9. The Office admits that “Rangwalla does not describe the ink as recited in the claimed invention.” *Id.* at p. 9. Nevertheless, the Office attempts to cure this deficiency by relying on Edlein. *Id.* The Office alleges that Edlein discloses a marking that “comprises ink containing pigments and carrier resins such as acrylate, epoxide, and ester functionalities (col. 9, lines 44-67). The pigment meets the claimed ink and the carrier resins meet the claimed energy-curable material.” *Id.* at p. 9. Applicant respectfully disagrees and traverses the rejection for at least the following reasons.

In making a rejection under 35 U.S.C. § 103, the Examiner bears the initial burden to establish a *prima facie* case of obviousness. *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985); *see also* M.P.E.P. § 2142. To meet this burden, the Examiner must point to some “need or problem known in the field of endeavor at the

time of the invention and addressed by the patent" that would have provided a person of ordinary skill in the art a "reason for combining the elements in the manner claimed."

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1740 (2007). "[A] design need or market pressure to solve a problem" may provide the requisite motivation to combine the claimed elements if a person of ordinary skill pursues a predictable solution that eventually leads to the anticipated success. *Id.* at 1740-41.

The Federal Circuit recently stressed that the teaching, suggestion, or motivation ("TSM") test retains an important role in obviousness analyses. *Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 83 USPQ2d 1169, 1174 (Fed. Cir. 2007). The court stated that "[a]s long as the [TSM] test is not applied as a 'rigid and mandatory' formula, that test can provide 'helpful insight' to an obviousness inquiry." *Id.* (citing *KSR Int'l Co.*, 127 S. Ct. at 1731). Moreover, the Federal Circuit stated that the Court in *KSR* "acknowledged the importance of identifying 'a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in a way the claimed new invention does' in an obviousness determination." *Id.*

In addition to the tests in *KSR* and *Takeda, supra*, the Office must show that the prior art references teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Thus, assuming that an Examiner has correctly concluded that one of ordinary skill in the art identified a benefit or reason to combine the prior art references, a rejection under 35 U.S.C § 103 nonetheless will fail if the Examiner has not established the presence of each and every claim limitation. *See, e.g., Ex parte Levy*, 17 U.S.P.Q.2d 1461 (Bd. Pat App. & Inter. 1990).

Claims 1, 3, 4, 8, 10-12, 38, 40, 41 and 44

The combined teachings of Edlein and Rangwalla fail to teach each and every element of Applicant's pending claims. As demonstrated above in response to the rejections under Section 102, the carrier resins disclosed in Edlein are not energy-curable monomers. Nor would one skilled in the art have had any reason to substitute the polymeric carrier resins with the claimed energy-curable monomers.

In fact, Edlein actually teaches away from the inclusion of monomers in an air-dryable or thermally-dryable ink. As discussed above, Edlein expressly defines the "solvent-based ink" of their invention as "an ink in which a pigment is dispersed in a polymeric carrier which, in turn, is solvated in a liquid medium such as, for example, water, an alcohol, an ester, or the like." *Edlein*, col. 3, ll. 31-34 (emphasis added). In addition, the patentees state that "widely used [resin] blends includ[e] nitrocellulose/polyamide and nitrocellulose/polyurethane." *Id.* at col. 10, ll. 1-2. They further allege that "[t]he latter blend is preferred in the present invention because it can resist penetration of monomers and or oligomers in the overcoat." *Id.* at col. 10, ll. 2-5 (emphasis added). As noted, this statement in Edlein is contrary to such assertions, and clearly teaches away from the presence of monomers within the ink layer because they are undesirable. This teaching away relates to the very material the Office alleges is taught, suggested or inherent in Edlein. Accordingly, Edlein cannot be said to teach (expressly or inherently) or fairly suggest the inclusion of energy-curable monomers in air-dryable or thermally-dryable inks. *Declaration*, pp. 4-5. In fact, Edlein teaches the exact opposite - their exclusion.

Claims 18, 20, 22-26 and 45

For nearly identical reasons as discussed above, Edlein also fails to teach or suggest layered materials having an ink layer and a lacquer layer each comprising polymers exhibiting at least some bonding between each other. A person of ordinary skill in the art would recognize that the polymeric carrier resins disclosed in Edlein are not chemically reactive by nature. Therefore, it is impossible for the polymers comprising the ink and overcoat layers disclosed in Edlein to exhibit at least some chemical bonding between them, as required by the instant claims. *Declaration*, pp.5-6.

As noted, Edlein teaches away from such chemical bonding by suggesting that any bonding by polymerization and/or crosslinking that takes place is limited to bonding between the components of the overcoat layer. For example, the patentees in Edlein state that “[o]nce the overcoat is applied, the printed film is exposed to ionizing radiation. This polymerizes and/or crosslinks the materials in the overcoat, thus providing a hardened “shell” over the underlying printed markings.” *Edlein*, col. 11, ll. 51-54 (emphasis added). Thus, Edlein clearly fails to teach or suggest the presence of chemical bonding “between” the components of the ink and the overcoat layers.

Declaration, pp. 5-6.

In summary, the combination of Edlein and Rangwalla does not fairly teach or reasonably suggest to a person skilled in the art air-dryable or thermally-dryable ink formulations comprising energy-curable monomers. The Office expressly admits that Rangwalla fails to teach or suggest the ink formulations comprising energy-curable monomers. And, while Edlein arguably teaches the addition of polymeric resins to solvent and water-based ink systems, Edlein fails to teach or suggest how such inert

polymers could be used to provide bonding with the polymers of an overlying lacquer layer. Moreover, Edlein teaches away from the claimed invention.

Accordingly, withdrawal of the Office's rejection under Section 103 is requested.

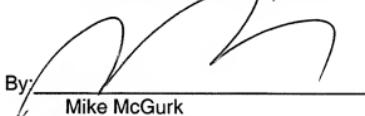
Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration and reexamination of this application, withdrawal of the outstanding rejections and the timely allowance of the pending claims. If the Examiner has any questions regarding this Amendment and Response the Examiner is invited to contact the undersigned at 617-452-1619.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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